CLAIMS

WHAT IS CLAMED IS:

1. A low-friction coating composition, comprising:

A. about 10 to about 30 wt% of an epoxy resin composition consisting essentially of 4-glycidyloxy-N,N'-diglycidylaniline;

B. about 30 to about 60 wt% of an epoxide resin composition consisting essentially of bisphenol A diglycidyl ether polymer; and

C. about 20 to about 40 wt% of an aromatic amine composition consisting essentially of 4,4'-sulfonyldianiline;

wherein all weight percents are based on the total weight of said low-friction coating composition, and wherein said low-friction coating composition is substantially free of chromate.

2. The low-friction coating composition of claim 1, wherein said epoxy resin composition comprises from about 20 to about 30 wt%, based on the total weight of said low-friction coating composition.

3. The low-friction coating composition of claim 1, wherein said epoxy resin composition comprises from about 25 to about 30 wt%, based on the total weight of said low-friction coating composition.

4. The low-friction coating composition of claim 1, wherein said epoxide resin composition comprises from about 35 to about 55 wt%, based on the total weight of said low-friction coating composition.

5. The low-friction coating composition of claim 1, wherein said epoxide resin composition comprises from about 40 to about 50 wt%, based on the total weight of said low-friction coating composition.

6. The low-friction coating composition of claim 1, wherein said aromatic amine composition comprises from about 25 to about 35 wt%, based on the total weight of said low-friction coating composition.

7. The low-friction coating composition of claim 1, wherein said aromatic amine composition comprises from about 30 to about 35 wt%, based on the total weight of said low-friction coating composition.

8. The low-friction coating composition of claim 1, further comprising up to about 10 wt% amorphous silica, based on the total weight of said low-friction coating composition.

9. The low-friction coating composition of claim 8, wherein said amorphous silica comprises about 6 to about 8 wt%, based on the total weight of said low-friction coating composition.

10. The low-friction coating composition of claim 1, further comprising up to about 12 wt% malenized polybutadiene, based on the total weight of said low-friction coating composition.

11. The low-friction coating composition of claim 10, wherein said malenized polybutadiene comprises from about 6 to about 8 wt%, based on the total weight of said low-friction coating composition.

12. The low-friction coating composition of claim 1, further comprising a filler selected from the group consisting of fluorinated grease, polytetrafluoroethylene powder, polytetrafluoroethylene fibers, molybdenum disulfide powder, graphite powder, ceramic powder, mica powder, mica flakes, boron nitride powder, copper/bismuth powder, milled fiberglass, and combinations thereof.

13. The low-friction coating composition of claim 12, wherein said fluorinated grease comprises up to about 15 wt%, based on the total weight of said low-friction coating composition.

14. The low-friction coating composition of claim 12, wherein said fluorinated grease comprises from about 8 to about 12 wt%, based on the total weight of said low-friction coating composition.

15. The low-friction coating composition of claim 1, further comprising a solvent.

16. The low-friction coating composition of claim 15, wherein said solvent comprises from about 0 wt % to about 40 wt %, based on the total weight of the composition.

17. The low-friction coating composition of claim 15, wherein said solvent comprises an admixture of about 10-40 wt% methyl isobutyl ketone and about 60-90 wt% propylene glycol monomethyl ether.

18. The low-friction coating composition of claim 15, wherein said solvent is methylene chloride.

19. A substrate coated with the low friction coating composition of claim 1.

20. The coated substrate of claim 19, wherein said substrate is selected from the group consisting of stainless steel, titanium alloys, aluminum alloys, carbon steel, magnesium alloys, nickel alloys, brass alloys, plastics, and combinations thereof.

21. A method of coating a substrate with a low-friction coating composition, comprising the steps of:

A. coating said substrate with the low-friction coating composition of claim 1; and

B. curing said low-friction coating composition onto said substrate at a temperature of between 100 and 500°F for 1-5 hours.

22. The method of claim 21, wherein said curing step occurs at between about 200 and about 400°F for between 2 and 4 hours.